REMARKS

Claims 37-69 are pending. By this Amendment, claims 1-36 are canceled and new claims 37-69 are added. The new claims correspond to the canceled claims as follows:

New Claims	Canceled Claims
43	7
44-47	8-11
48	25
51	12
52	18
53	14
54	20
55	51
56	15
57	19
58-69	5 and 25

Applicant respectfully requests the Examiner to initial and return Form PTO-1449 filed February 3, 2005.

Applicant appreciates the Office Action's indication that claims 7, 12, 13 and 24 contain patentable subject matter.

The Office Action rejects claims 1-3, 5, 6 and 19 under 35 U.S.C. §102(b) over U.S. Patent Publication No. 2001/0046202 to Tanaka et al., claims 1-6, 8, 9, 11, 14 and 18-22 under 35 U.S.C. §102(e) over U.S. Patent Publication No. 2003/0235678 to Graham et al., claims 1-4 and 18 under 35 U.S.C. §102(e) over U.S. Patent Publication No. 2003/0080143 to Kale et al., claims 1, 2, 30 and 36 under 35 U.S.C. §102(e) over U.S. Patent Publication No. 2004/0009608 to Caren et al., claim 10 under 35 U.S.C. §103(a) over Graham et al., claims 1, 15, 16, 23, 25 and 31 under 35 U.S.C. §103(a) over U.S. Patent No. 6,723,394 to Sirringhaus et al. in view of Kale et al., claims 1, 15, 17, 27, 29, 33 and 35 under 35 U.S.C. §103(a) over U.S. Patent No. 4,668,533 to Miller in view of Kale et al., and claims 1, 26, 28, 32 and 34 under 35 U.S.C. §103(a) over U.S. Patent No. 6,022,647 to Hirose et al. in view of Kale. These rejections are respectfully traversed.

Tanaka discloses pressing grooves in a substrate and forming ridges at the boundary of the grooves. A resin liquid is deposited between the grooves and retained by the ridges. See, e.g., Tanaka at paragraphs [0022], [0034] and [0057]. The grooves are said to have a depth of approximately 10 μm. See, e.g., paragraph [0050]. This differs from the independent claims in that ridges at the boundary of the grooves are required and that the dimensions of the grooves are different. Tanaka does not disclose the depositing of the first and second liquids in the relevant parts and not depositing material in other parts of the surface.

In addition, the dimensions of the grooves disclosed in Tanaka are different in that the depth is significantly larger which enables the ridges at the boundary of the grooves to be formed. Moreover, there is no disclosure or suggestion at controlling the distance between the two grooves so as to affect the surface tension of the liquid droplet. Thus, a larger volume of droplet may be deposited.

Graham relates to printing on an adhesive surface such that the surface is microstructured so as to reduce the capillary attraction of the printed ink. See e.g., Graham at paragraph [0016]. The surface is microstructured with first and second elements. The dimensions of the primary elements are in the order of micrometers, including the width between the primary microstructure being in the order of 5-20 μms. See e.g., paragraph [0036]. Secondary microstructure elements are formed between the primary microstructure elements and have dimensions in the order 0.1 to 50 μms and a width in the order of 5-30 μms. See e.g., paragraphs [0046] and [0050]. Graham discloses printing ink onto this microstructured surface whereby the configuration of the microstructures has a sufficient capacity to control the placement of an individual drop of ink. See e.g., paragraph [0038]. There is no disclosure or suggestion in Graham of printing the ink onto the microstructures themselves. Rather the ink is contained within the voids between the microstructures. See e.g., paragraph [0041]. Thus, Graham does not disclose or suggest depositing a liquid on top

of a raised region and using those raised regions to control the spread of the droplet. Instead, Graham merely teaches controlling the spread of the deposited ink by forming voids of a sufficient volume to contain the volume of the ink droplet.

Kale relates in general to the deposition of liquids and controlling the volume thereof by whichever deposition method is used. Kale specifically refers to jetting technology in paragraph [0005] and pin spotting technology in paragraph [0007]. Ink jet printing is not specifically disclosed.

Kale discloses modifying the surface by patterning the same with amongst other possibilities various structures to control the volume of the droplet to be deposited. In paragraph [0096] Kale refers to "the efficient control of the shape, volume, and size of a droplet requires sophisticated selection of the surface tension and topology of the substrate." In paragraph [0135] Kale states "the surface tension and topology of the substrate are two key parameters determining its performance in capillary dispensing." However, Kale discloses that the distance between the substrate and the capillary is "by far the most important factor among those parameters deciding the volume of the dispensed droplet." See e.g., paragraph [0138].

In Fig. 9 and in paragraphs [0142] and [0143], Kale teaches providing a surface topology with cylindrical columns having flat tops. The cylindrical columns confine the contact between the dispensing liquid and the surface within a specified area on the surface. However, Kale et al. specifically states in paragraph [0142] that "the diameter of the droplets formed is the same as that of the column." Similarly, the alternative shown in Fig. 10 and described in paragraph [0143] teaches that the deposited droplets have a diameter which is the same as that of the hydrophobic wells. Dimensions of the surface topology are not disclosed.

The difference between new pending claims and Kale relies upon dimensioning raised portions which are smaller that the dimensions which would normally be occupied by the

same droplet should there be no surface topology. Thus, there is the advantage that a larger volume droplet can be deposited leading to a thicker pattern of deposited liquid.

Finally, Caren discloses in Fig. 12 the use of raised portions 19a or 15 upon which material is deposited. However, references made in paragraph [0042] to the dimensions of those raised portions being the same in structure and form as raised members 19a. The only reference to the dimensions of raised members 19a appears to be paragraph [0033] which refers to dimensions of millimeters or at least micrometers. Hence, given the differences in dimensions, the droplet size would appear to rely more on gravitational forces than surface tension forces. Accordingly, Caren makes no reference of defining the dimensions so as to increase the contact angles of the droplet being formed thereby enabling the volume of the liquid droplet to be greater than would otherwise be formed.

Finally, Caren does not disclose or suggest depositing a first and second liquid in certain parts of the surface and not depositing any material in other parts of the surface.

The remaining references do not provide the deficiencies of Tanaka, Graham, Kale and Caren.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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Attachments:
Claim Transmittal

Date: March 14, 2005

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